Information

A Program for Breast Cancer Detection

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THE AMERICAN CANCER SOCIETY's 1980 statistics indicate that breast cancer will develop in 1 of 11 women (9 percent) sometime during her life.[1,2] The rate of early breast cancer detection is far below that which could be achieved, partly due to a prodigious amount of inaccurate publicity that has caused the average woman unwarranted fear of x-ray mammography.[3] In many cases this fear is a psychological shield against the apprehension that a tumor might be discovered. As a result, many women eventually come to their physicians with lesions that have been present for some time, and that have become quite large. These women mentally deny the presence of a mass, thus delaying diagnosis and treatment.

In our clinic, with its dedication to the early detection of breast disease, a history, physical examination and personalized instruction in breast self-examination are completed. An ultrasonic evaluation on a dedicated water-path breast scanner, only recently available for clinical use, is then done, followed by a xeromammographic study.

A primary contribution of our system is the psychological approach and its acceptance by patients. This important factor has received little or no attention in most of the scientific communications published regarding breast cancer.

A specially trained registered nurse individually

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assists each patient through the clinic. It has been shown in the Breast Cancer Detection Demonstration Projects study that a well-trained health practitioner can carry out a physical examination as effectively as a physician.[4]

As a woman proceeds through the clinic, she is first seated at a desk where an audiovisual device shows basic facts of her examination and how it will be done, emphasizing that she will experience no pain or discomfort. A history of factors shown to be important in breast carcinoma is then obtained. These factors will be taken into account by the radiologist who will interpret the study. The patient then goes to an examination room where she is asked to undress to the waist and to put her clothing and purse into a "take-along" basket so that she need not be concerned about her personal belongings.

The nurse doing the examination has been trained by a gynecologist. She examines the woman's breasts, records the findings and then gives instruction in self-examination. Each woman is given an illustrated pamphlet to refer to when she does her regular monthly self-examination. She may return at any time for reinstruction in breast self-examination at no additional cost.

Ultrasound mammography using dedicated ultrasound equipment is then carried out. The patient watches the television screen during the procedure to allay any anxiety. Ultrasound has become an accepted diagnostic tool. Many physicians lag behind, however, in knowledge of the newer applications.[5] Ultrasound mammography study has been found to surpass xeromammography in the differential diagnosis of both cystic and solid masses in young or dense breasts.[6]

A complete two-view or a single mediolateral oblique xeromammogram is then done on each breast. Upon completion of the x-ray studies, the woman is told that the results will be reported to her physician in a day or two. She may call the clinic if she has future questions (many do) and the nurse will answer where appropriate, or will refer her back to her regular physician.

Patients are accepted on a physician-referral basis rather than as "walk ins." It is important for a primary physician to continue follow-up on the patient, especially when the results are equivocal or lesions are detected that require treatment.

History

The history is used to identify risk factors for breast cancer.[7-9] The following increased risk fac-

tors are noted in taking the patient's history: family history of breast cancer, especially of a grandmother, mother or sister; personal history of breast cancer; family or personal history of fibrocystic disease; onset of menopause after age 55; early onset of menses, that is, under age 11; childlessness; having first child after age 30, and ethnic background.

Physical Examination

Each nurse is required to spend a week in a training center where the ultrasound equipment is used daily and she is fully trained in its operation. She is trained in careful examination of the breasts and the use of appropriate terminology. The patients' acceptance of an empathic, well-trained registered nurse on a woman-to-woman basis is a primary and integral part of our approach. Patient acceptance has been high and this approach has presented no problem to the occasional male patients. The nurse clinician is responsible for detecting an abnormality and bringing it to the attention of the physician who will interpret the study and diagnose the patient's condition.

Instruction in Self-examination

A Gallup poll in 1979 showed that two thirds of the women polled had never had an examination of their breasts or been taught breast self-examination.[10]

Women coming to the clinic are afraid we may discover an abnormality. They are very relieved when their doctor informs them that no abnormalities have been found or that the mass palpated is a benign cyst. Although they are told it is possible that a small number of abnormalities may be missed, we have increased their awareness of breast cancer.

The nurse clinician carefully instructs women in modern methods of self-examination using mirrors at an appropriate height. It has been shown that most women, even after instruction, will examine themselves only several times a year or not at all. A greater number will examine themselves monthly after going through the clinic. The teaching is done with patience and understanding, stressing monthly examinations. A breast model (Betsy Breast) is used in which a woman learns to palpate four types of lesions. This allows her to test her newfound skills and to increase her awareness of breast lesions.

Ultrasound

We use the SMV 120™ Sonic Mammographic Viewer manufactured by Technicare, a subsidiary of the Johnson & Johnson Company.[11] This is a highly sophisticated computer-controlled ultrasonic breast scanning device. It has a high-resolution real-time water-path scanner specifically designed for breast imaging. The system is composed of three parts: a patient console and scanning tank, an electronic operating console and a physician image-viewing console.

The system is controlled by a microprocessor, which sequences the automatic operating functions. The operating console has numerous image-enhancing and data-manipulating features, including monitoring of patient and instrument status. The scanning tank has a dual flush/flash fill system, is chlorination controlled and has heating and filtering devices to maintain hygienic standards and patient comfort and safety.

Images are kept in a high-density memory device and can be displayed on a video monitor. The interpreting physicians thus have multiple images to review as they proceed in short increments through the breast. Any one of these images can be frozen, or the monitor can be run forward or backward; thus the physicians can review or create permanent film images of any selected area. This structuring of data is sophisticated and resolution is excellent for establishing a diagnosis. The breast can be scanned in three dimensions: sagittally, transversely and coronally. The A-mode histogram, which can be generated through any area of interest seen on the B-mode, is often very helpful in differentiating solid from cystic lesions. Its accuracy in differentiating cystic from solid masses in lesions 1 cm or larger is 100 percent.[12]

Mammography

We have been surprised by the number of lesions that show up on only one diagnostic device. Mammography is more reliable in patients with a large or fatty breast. In dense or dysplastic breasts (see Wolfe's classification) ultrasound is more effective.[13,14] Frazier[15] found that over 70 percent of cases in which xeromammogram studies gave false-negative findings were in the dysplastic or DY category. Negative-mode mammography is used on patients under 30 years to further decrease radiation.[16] Most important, lesions that are missed on mammography are usually picked up on the ultrasound, and the false-negative re-

sults of ultrasound are picked up by mammography.[15] We feel that using both devices picks up over 95 percent of lesions. However, we tell referring physicians that though we have tried to combine all methods to decrease the possibility of missing a lesion, it is still possible to miss a small lesion or to have false-positive or false-negative findings.

The works of Lundgren,[16] Libshitz[17] and Buchanan[18] and their co-workers suggest that single-view mammography may be used for screening. This reduces radiation exposure by 45 percent because the mediolateral requires more exposure than the craniocaudal view.[16-19] The small nests of calcifications indicative of a very small tumor are easily seen on the single-view mammogram, but are not shown by ultrasound. The mammogram and ultrasound are thus complementary. We are investigating the use of a single-view mammogram in conjunction with ultrasound.

Mammographic compression may help show a lesion but may also displace its apparent location. The ultrasound provides a more anatomic location of the lesion.

Our combined approach is cost effective because a single lesion found early can be treated inexpensively as opposed to the cost of extensive surgical procedure, radiation therapy and rehabilitative needs of the patient with advanced carcinoma. Equally important is the psychological impact on the patient, her life and the lives of those around her.

We would like to recommend this combined approach because it is a simple and relatively inexpensive method for the early detection of breast cancer. Early diagnosis greatly reduces the cost of treatment over that of continued care of breast cancer that has already metastasized by the time diagnosis is established. Patients treated for early breast cancer have an excellent prognosis. According to Lazlo Tabar of Fallun Hospital, Fallun, Sweden, the 20-year survival rate of patients treated for minimal breast cancer exceeds 90 percent.[20]

Our recommendations as to who should be evaluated are consistent with the 1979 combined statement on mammography of the American College of Obstetricians and Gynecologists and the American Cancer Society.[1,21,22] We agree with Frankl and Fleming[23] that the real hazard is not in carrying out but in not carrying out a potentially lifesaving examination.

Recommendations

First, all women over 35 should have a baseline examination. This should be repeated every one to three years, depending on breast type and risk factors, until the age of 50. Second, all women aged 50 and over should have annual physical, mammographic or ultrasound examinations. Finally, all women should be instructed in and encouraged to practice monthly self-examination.

Summary

A program is described for detecting breast cancer by the best currently approved methods, combined with a psychological approach to female patients that gains their cooperation and acceptance. Free-standing clinics have been created that accept patients by physician referral. On entering the clinic, the patient is met by a specially trained registered nurse who personally takes the patient through the clinic. The nurse takes a breast history, shows the patient a short, three-minute film explaining what she will experience in the clinic, and then does a complete breast examination. The patient is then instructed in supine and upright techniques of self-examination with the use of mirrors. She then applies her newly learned skills on a rubber breast model containing four specific lesions. A full examination of the breasts using computerized ultrasound is then done. Next, a low-dosage xeromammogram study is completed. Besides outstanding patient acceptance, the physician interpreting the films has the advantage of history, physical findings, ultrasound and xeromammograms for his review simultaneously. All these entities are complementary and proved effective—our success lies in their combination.

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Information

Paralysis and Rhabdomyolysis: A Presenting Feature of Celiac Disease

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RHABDOMYOLYSIS, seen in a wide variety of conditions,[1] is a rare complication of malabsorption.[2] We report a case of adult celiac disease in which paralysis and rhabdomyolysis, probably secondary to hypokalemia, were presenting features.

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TABLE 1.—Serial Changes in Creatine Kinase (CK) After Admission

Day After Admission	CK IU Per Liter	Day After Admission	CK IU Per Liter
0	13,000	12	1,860
2	11,200	15	478
4	8,000	18	112
7	4,560		

Report of a Case

A previously healthy 75-year-old Norwegian man was admitted to the Vancouver General Hospital with pronounced weakness of his arms and legs. He gave no history of diarrhea, loose stools, weight loss or drug intake.

On physical examination the patient's pulse was 110 per minute, blood pressure 130/70 mm of mercury and temperature 37.1°C. Examination of the cardiovascular and respiratory systems found no abnormalities. There was no clinical evidence of hepatomegaly or splenomegaly. Neurological examination showed generalized flaccid weakness with notably diminished tendon reflexes.

Laboratory studies showed a hemoglobin value of 12.8 grams per dl and a leukocyte count of 6,900 with a normal differential. Analysis of urine showed a 2 + hemoglobinuria with dipstick (Ames). This was later shown to be myoglobin.

Other laboratory studies gave the following values for serum: sodium 138 mEq, potassium 2.1 mEq, chloride 91 mEq, total carbon dioxide 32 mEq, creatine kinase 13,000 IU (normal, 15 to 100), lactate dehydrogenase 960 IU (normal, 90 to 210) and aspartate transaminase 105 IU per liter (normal, 5 to 35). Alkaline phosphatase was within normal ranges, as were urea nitrogen and creatinine.

Subsequent laboratory findings indicating malabsorption were as follows: plasma ionized calcium 1.5 mEq per dl (normal, 2.0 to 2.8), serum phosphorus 2.1 mg per dl (normal, 2.5 to 4.5), serum magnesium 1.6 mg per dl (normal, 1.8 to 2.8), serum folate 2.8 μg per liter (normal, 3 to 13) and serum B_{12} 140 ng per liter (160 to 925). Fecal fat excretion was 23.5 grams per 24 hours. Serial measurements of creatine kinase are shown in Table 1. An electrocardiogram showed the presence of atrial fibrillation. Radiologic examination of the small intestine showed dilated loops of bowel, segmentation and flocculation and a slow transit time suggestive of malabsorption. Jejunal biopsy was consistent with celiac disease, with